

1 TITLE OF INVENTION: A Method And Apparatus For Data Recipient Storage And  
2 Retrieval Of Data Using A Network Communication Device

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A 1  
5 FIELD OF THE INVENTION

6 This invention relates generally to a method and system where certain data  
7 subject information is stored on a server and is provided to a third party thereby allowing  
8 the data subject with a network communication device to send data over a network in an  
9 easy and safe manner.

10 BACKGROUND OF THE INVENTION

11 The essence of electronic commerce is the exchange of information. The most  
12 common form of electronic commerce entails the purchase of products over the Internet  
13 using a credit card. Information necessary to consummate a credit card transaction  
14 includes the data subjects name, address, credit card information, and the amount to be  
15 charge. While the term "electronic commerce" is generally associated with the  
16 purchase of goods and services over the Internet, the term encompasses other  
17 transactions as well. For example, applications for insurance, college admissions, and  
18 loans are transactions that are not purchase transactions. Hence the term "transaction"  
19 is generally used herein to describe all manner of interactions over a network of the type  
20 noted above. The common element to all transactions is the transfer of data from one  
21 party to another.

22 A person want to send personal data (the "data subject") can either type in the  
23 required information each time a transaction is consummated or store the data for  
24 retrieval. Typing in data is not only inefficient and prone to errors, but discourages  
25 electronic commerce. Using a local software solution is generally considered  
26 undesirable, as most such software programs are proprietary to a particular payment  
27 system, require the data subject to become skilled in the operation of the program, and

are perceived as slow or unwieldy.

Recently, wireless Internet services have been developed to allow data subject use of wireless network communication devices such as wireless phones and PDAs (personal digital assistants) to send and receive information over the Internet. Wireless devices generally have limited memory making wallet software that is resident on a network communication device impractical. Even if wallet software for wireless devices could be written compactly, updating such software could prove very difficult. Many of these phones use proprietary software, so custom wallet software would need to be provided.

Similarly, cable television systems have evolved into two-way networks in which the data subject uses a network device to send and receive information over the cable network. The cable network communication device may be a set-top box or a remote unit. Like the wireless device, memory is limited and wallet software is impractical.

Therefore, a need exists for a system that allows a data subject to send data information to a data recipient over a common network in a manner that offers security, allows access from any network communication device that has access to the common network, and allows system upgrades without dependency on changing software on the data subjects' network communication device.

#### SUMMARY OF THE INVENTION

It is therefore an object of the present invention to reduce the number of steps a data subject is required to perform in order to send information with a network communication device over a common network.

A further object of the present invention is to reduce the number of steps a data subject is required to perform in order to purchase a product with a wireless device over a common network.

A further object of the present invention is to reduce the number of steps a data subject is required to perform in order to purchase a product with a wireless device over

1 the Internet.

2 A further object of the present invention is to reduce the number of steps a data  
3 subject is required to perform in order to purchase a product over a network using a  
4 device that has reduced functionality, such as a wireless communication device or set  
5 top box connected to a cable network.

6 A further object of the present invention is to eliminate the need for data subjects  
7 to leave a data recipient's site to acquire an electronic form of payment.

8 A further object of the present invention is to eliminate wallet software and  
9 personal/identification information that is permanently stored on the data subject's NCD.

10 A further object of the present invention is to allow the system administrator of  
11 the data repository to upgrade the software on such server at any time.

12 A further object of the present invention is to allow flexibility in providing new or  
13 modified services to the data subjects via upgrades to software stored on the data  
14 repository.

15 A further object of the present invention is to reduce the number of payment  
16 parameters data subjects are required to fill in when purchasing products with a  
17 wireless device over a network.

18 A further object of the present invention is to allow data subject information to be  
19 provided to data recipients using payment systems from various service providers.

20 A further object of the present invention is to use the architecture of the data  
21 repository to aid the data subject with a wireless device in distributing all manner of  
22 information, not just purchase/money information, to a variety of recipients when those  
23 recipients are to receive essentially the same information from one recipient to the next.

24 A further object of the present invention is to provide a gateway communicating

1 with the data repository using conventional network protocols and with the data subject  
2 NCD using network protocols appropriate to the network to which the NCD  
3 communicates.

4 The present invention is a system for presenting a data subject's purchasing  
5 information to a data recipient's computer to allow a sale of goods or services to be  
6 consummated. The system comprises a network communication device associated  
7 with a data subject (the "data subject's NCD "), a computer associated with a data  
8 recipient (the "data recipient's computer"), a gateway that connects the network to which  
9 the data subject's NCD communicates to the network on which the data repository and  
10 the data recipient's computer are connected (the "NCD gateway"), and a server (the  
11 "data repository" data repository) on which the necessary and desirable information  
12 about the data subject is stored. The data subject's NCD, the data recipient's computer,  
13 the NCD gateway, and the data repository are connected to a common network, such  
14 as the Internet, and communicate using communication protocols. The data subject's  
15 NCD operates software that can interpret and process files from the data recipient's  
16 computer and the data repository (the "NCD software"). The data recipient's computer  
17 operates as a web server, provides transaction processing, and performs other  
18 functions. The data recipient's computer may be a single device, or may, at the data  
19 recipient's discretion comprise a number of devices that may or may not be co-located.  
20 The data recipient's computer also operates software ("client software") that  
21 communicates with the data repository. The data repository operates data repository  
22 software that provides access to information stored in various databases, logs, and/or  
23 data structures.

24 The present invention allows data subjects with NCDs operating on a network

1 (the "NCD network) to send transaction data over a network to which the data recipient  
2 computer and the data repository are connected (the "common network") and allows  
3 data recipients to receive data relating to that transaction. In the preferred embodiment,  
4 the transaction involves the purchase of goods and services, the common network  
5 connecting the NCD gateway, the merchant's computer, and the data repository is the  
6 Internet, and the transaction data is purchasing data. However, the invention is not  
7 limited to this embodiment and the description of a purchase transaction is not meant as  
8 a limitation.

9 During the shopping process, a data subject browses a data recipient's Web site  
10 via an NCD . The NCD may be any communications device connected to the common  
11 network via the NCD gateway. In this example, it is assumed that the NCD is a wireless  
12 device. The data recipient's Web site includes goods and/or services (herein, "item")  
13 for sale. The data recipient's Web site also operates client software. When the data  
14 subject requests a data recipient's offer, the client software sends a file readable by the  
15 NCD software and the data recipient's offer to the NCD software on the data subject's  
16 NCD. The data recipient's offer comprises in part a transaction number that is not  
17 representative of the product code or description. The NCD software readable file  
18 includes an address to the data recipient's Web page and instructions that instruct the  
19 NCD software to communicate with the data repository via a NCD gateway. The data  
20 recipient's offer passes through the data subject's NCD to the NCD gateway to the data  
21 repository software.

22 The data repository software returns a message to the NCD software via the  
23 NCD gateway and instructs the NCD software to display a wallet on the data subject's  
24 NCD. The content of this wallet depends on whether or not the data subject is known to  
25 the data repository software.

26 If the data subject is known to the data repository software, the data repository

1 software takes information contained in the data recipient's offer and forwards it to the in  
2 a format that allows the NCD software to display the data recipient's offer and sends the  
3 data recipient's offer to the data subject's NCD where the data recipient's offer is  
4 displayed by the NCD software. The data subject is prompted to decide whether or not  
5 to purchase the item. Typically, this communication occurs by the data subject making  
6 a menu selection resulting in a message being communicated to the data repository via  
7 the NCD gateway.

8 If the data subject elects to purchase the item, the data repository software  
9 forwards information to the data recipient's computer. The information includes  
10 information from the data recipient's offer and the data subject's personal information  
11 (e.g., credit card number, address, shipping address) which is stored on the data  
12 repository. The data recipient's computer then uses the information to complete the  
13 transaction.

14 If the data subject is unknown to the NCD gateway and data repository software,  
15 the data repository software sends a request to the data subject's NCD via the NCD  
16 gateway. The request prompts the data subject to provide the purchasing information to  
17 complete the transaction. Once the data subject provides sufficient information via the  
18 NCD gateway to complete the transaction, the data repository software prompts the  
19 data subject via the NCD gateway to purchase the item as noted above. If the data  
20 subject elects to purchase the item, then the data subject is prompted to elect to have  
21 the information retained on the data repository for future use (the process herein  
22 referred to as "registration"). If the data subject answers "no", then the information is  
23 stored in a temporary data structure. Information stored in the temporary data structure  
24 is retained for a set amount of time and is not available for reuse by the data subject. If  
25 the data subject answers "yes", then the information pertaining to the data subject is  
26 stored in a data structure intended for the retention and future use by the data subject.

27 If the data subject elects to register with the data repository software, during the

1 registration process, the NCD software is sent a NCD software identifier. In the  
2 preferred embodiment, the NCD software identifier is a cookie. The NCD software  
3 identifier contains data that are cryptographically protected to enhance security. The  
4 NCD software identifier allows the data repository software to identify the NCD software  
5 and permits a customer to authenticate himself or herself, thereby permitting the data  
6 repository software to use the data subject's stored information in future transactions.

7 The system also allows data subjects who are registered on a different browser  
8 to authorize the data repository software to use the data subject's stored information.  
9 This situation occurs when the data repository software cannot identify the NCD  
10 software identifier because there is no NCD software identifier in the NCD software or  
11 the NCD software identifier cannot be used to identify the particular data subject using  
12 the NCD software.

13 Since the system establishes communication links between the data recipient's  
14 computer and the data repository, the system can be optimized in several respects. For  
15 example, the price of an item may be affected by the location to which the item is to be  
16 shipped, the method of shipping, and by tax obligations. The data repository software  
17 communicates information pertaining to the data subject to the data recipient's  
18 computer permitting the data recipient's computer to determine a "final" price based on  
19 the data subject's information, i.e., shipping address and/or preferences.

20 The data repository software can associate a data subject with an identification  
21 code that can be presented to the data recipient's computer, thus allowing the data  
22 recipient to "recognize" a data subject and provide customer-specific messages,  
23 displays, and offers. The data repository software and/or NCD gateway can tailor its  
24 communication with the data subject's NCD in accordance with a profile created by the  
25 data repository software or NCD gateway. The profile is based upon preferences  
26 chosen by the data subject or created by the data repository software or NCD gateway  
27 based on the data subject's behavior, from preferences chosen by the data recipient,

1 the wireless device type, or the like.

2 With respect to data subjects, the system is optimized to provide all of the  
3 purchasing information to the data subject thereby allowing the data subject to verify the  
4 information and make a purchase decision without further purchasing information input  
5 from the data subject. The system can also establish a dialogue via the NCD gateway  
6 between the data subject's NCD and the data repository to permit the data subject to  
7 select from options such as which credit card to use, the shipping address, and the  
8 shipping means.

9 In the preferred embodiment, the data subject's NCD is a wireless device and the  
10 NCD gateway operates a version of the wireless application protocol ("WAP").

11 However, the NCD may be any device that may access the common network through a  
12 gateway and send and receive files in a language that is common to the data subject's  
13 computer and the data recipient's computer. For example, the NCD may be a set-top  
14 box used by a data subject to interact with a cable television system that connects to  
15 the Internet through a NCD gateway.

#### 16 BRIEF DESCRIPTION OF THE DRAWINGS

17 Figure 1 illustrates a wireless network connected to the Internet through a WAP-  
18 enabled gateway.

19 Figure 2A illustrates the process of purchasing an item over a network

20 Figure 2B illustrates the actions of the data repository software if it determines  
21 that the information provided by the data subject is insufficient to identify the data  
22 subject.

23 Figure 2C illustrates the actions of the data repository if the item price needs to  
24 be adjusted due to the data subject's shipping address and/or shipping preference.

25 Figure 2D illustrates the actions of the system of the present invention if the data  
26 subject elects to purchase an item.



1 DETAILED DESCRIPTION OF PREFERRED EMBODIMENT

2 Referring to **Figure 1**, the elements of the present invention are illustrated. The  
3 preferred embodiment for this function is assisted by the technology disclosed in U.S.  
4 Patent No. 5,327,529, which issued on July 5, 1994, and is incorporated herein by  
5 reference. A portion of the technology described in the '529 patent, which is referred to  
6 as the "Flex UI Patent," has been realized by Geoworks of Alameda, California, in the  
7 implementation of the Wireless Application Protocol (WAP) and the corresponding  
8 Wireless Markup Language (WML). WAP was promulgated to allow application  
9 programs to be written to operate on a wide array of wireless communications networks.  
10 With WAP and the WML, an application can be written once, and it will operate on any  
11 WML-compliant device operating on a WAP-compliant wireless communications  
12 network.

13 The present invention allows data subject **100** to purchase a product or service  
14 (hereinafter an "item") over common network **160** and allows data recipient **104** to  
15 receive payment information relating to the transaction.

16 To purchase an item, data subject **100** uses data subject's NCD **102**. Data  
17 subject's NCD **102** operates software that is either a web browser or emulates a web  
18 browser (the "NCD software") **104** or could also be software with the requisite capability  
19 of displaying the information supplied by data recipient computer **122**. NCD software  
20 **104** allows data subject **100** to download and display Web pages.

21 To receive payment information relating to the purchase, data recipient **120** uses  
22 data recipient computer **122**. Data recipient computer **122** operates network server  
23 software **124** and client software **126**. Network server software **124** displays a data  
24 recipient's Web pages. Client software **126** allows data recipient **104** to communicate

1 with the Data repository (the "data repository") **140**.

2 In the preferred embodiment, data repository **140** comprises data repository  
3 software **142** which gathers and stores the purchasing information to complete a  
4 purchasing transaction over common network **160**, temporary data structure **144** which  
5 stores data subject information for a limited amount of time and cannot be used in future  
6 transactions, data subject data structure **146** which stores data subject information  
7 which can be used in future transactions, data recipient data structure **148** which stores  
8 information pertaining to different data recipients, data subject transaction log **150** which  
9 stores information pertaining to the transactions for registered data subjects, and data  
10 recipient transaction log **152** which stores information pertaining to transactions for  
11 registered and non-registered data subjects.

12 Data subject's NCD **102** is connected to NCD gateway **110** over NCD network  
13 **112**. NCD gateway **110** incorporates software and hardware to permit the data  
14 subject's NCD to display and implement instructions included in the files sent by data  
15 recipient computer **122**. The present invention can operate over various types of NCD  
16 networks both wired and wireless and satellite, however this should not be construed as  
17 a limitation. In the preferred embodiment, data subject's NCD **102** is a wireless device,  
18 NCD gateway **110** operates a WAP interface, NCD network **112** is a wireless network,  
19 and the computer files sent and by data subject's NCD **102**, data recipient computer  
20 **122**, and data repository **140** are written in HTML.

21 NCD gateway **110**, data recipient computer **122**, and data repository **140** are  
22 connected to common network **160**. The present invention can operate over various  
23 types of common networks both wired and wireless. The present invention can operate  
24 over the Internet, cable, intranet, LANS, and WANS however this list should not be

1 construed as a limitation. In the preferred embodiment, the common network is the  
2 Internet.

3 Data repository software **142** gathers and stores the purchasing information to  
4 complete a transaction over common network **160**. Data repository software **142**  
5 gathers the transaction information directly from data subject **100**, from data subject  
6 data structure **146** or from both. If data subject **100** has not previously registered with  
7 data repository software **142**, data subject **100** is treated as a non-registered data  
8 subject. For non-registered data subjects, data repository software **142** gathers the  
9 transaction information by prompting data subject **100** for the information. If data  
10 subject **100** is a registered data subject, i.e., a data subject who previously registered  
11 with data repository software **142**, then data repository software **142** gathers the  
12 transaction information from data subject data structure **146**. If additional transaction  
13 information is needed, data repository software **142** prompts data subject **100** for the  
14 information.

15 Temporary data structure **144** stores label-value pairs relating to a particular  
16 interaction between data subject **100** and data recipient **120**. If data subject **100** is not  
17 known to data repository software **142** (discussed below), data subject **100** is prompted  
18 for transaction information to complete the transaction. The transaction information can  
19 include the customer's name, billing address, shipping address, and credit card number,  
20 however this information should not be construed as a limitation. In the preferred  
21 embodiment, the transaction information is stored in temporary data structure **144** that  
22 is located at data repository **140**. In alternative embodiments, the transaction  
23 information can be stored on a dedicated server or a shared server.

24 If data subject **100** declines to have transaction information stored at data

1 repository **140**, the transaction information remains in temporary data structure **144** for a  
2 set period of time. The transaction information in temporary data structure **144** is not  
3 available to data subject **100** for future transactions. If data subject **100** elects to have  
4 transaction information stored at data repository **140**, the transaction information in  
5 temporary data structure **144** will be saved for subsequent use in data subject data  
6 structure **146**.

7 Data subject data structure **146** stores label-value pairs relating to data subjects,  
8 including data subject **100**, that have completed the registration process with the  
9 operator of data repository **140**. The label-value pairs in data subject data structure **146**  
10 represent information that is necessary, and may include information that is useful to  
11 complete a transaction. The transaction information can include the customer's name,  
12 billing address, shipping address, and credit card number, however this information  
13 should not be construed as a limitation. The useful information can also include email,  
14 telephone numbers, facsimile numbers, and user preference data (regarding shipping  
15 address, shipping method, and related data), however this information should not be  
16 construed as a limitation.

17 Data recipient data structure **148** stores label-value pairs relating to data  
18 recipients, including data recipient **120** that have completed the registration process  
19 with the operator of data repository **140**. The label-value pairs in data recipient data  
20 structure **148** represent information that is necessary to identify data recipient **120** and  
21 data recipient computer **122**. This information includes contact information, data  
22 recipient identification number, network location(s) for the data recipient computer **122**,  
23 payment card type, accepted currencies, and payment methods (e.g., electronic check,  
24 micropayments), however this information should not be construed as a limitation.

1 Data subject transaction log **150** stores label-value pairs relating to transactions  
2 performed by registered data subjects. Data recipient transaction log **152** stores label-  
3 value pairs relating to transactions performed by registered and non-registered data  
4 subjects, including data subject **100**. The operator of data repository software **142** can  
5 allow data subjects and data recipients access to the information contained in their  
6 respective data structures as deemed necessary. For instance, data subject **100** can  
7 be given a summary of the data subject's transactions over a period of time. Data  
8 recipient **120** can be given a summary of the data recipient's transactions over a period  
9 of time.

10 U.S. Patent Application serial number 09/167,873, filed October 7, 1998  
11 discloses the underlying wallet process and system of the present invention, and is  
12 incorporated here in its entirety. Data recipients invoke commerce by sending an offer to  
13 a wallet server via the data subject. The wallet server supplies the information needed  
14 by the data recipient to complete the transaction.

15 In the preferred embodiment of the present invention illustrated herein the data  
16 subject's NCD is a wireless device that communicates over a wireless network to a  
17 WAP-enabled gateway. It should be noted that while a WAP-enabled gateway is  
18 discussed, this is not meant as a limitation since WAP is but one protocol for making  
19 two different networks "talk" to one another. The concept may be similarly employed to,  
20 for example, a cable network to communicate with the internet, in which case a WAP  
21 enabled gateway is not required. The data subject's NCD, the data recipient server,  
22 and the data repository all send files in a common language. This language may be,  
23 without limitation, HTML, WML, XML, or other language. The preferred embodiment  
24 uses HTTP to send the offer to the NCD software. The NCD software forwards the  
25 HTML and/or WML message to a WAP-compliant NCD gateway for forwarding to the

1 data repository. Further communication between the devices, as described earlier, is  
2 accomplished with the aforementioned protocols to complete the transaction.

3 In another embodiment of the present invention, the WAP gateway does not  
4 merely forward information but itself stores information relevant consumers who are  
5 connected to the wireless network. In this case, interaction can take place between the  
6 merchant and the gateway for certain selected communications such as authentication  
7 without the need for the consumer to be involved. This data can be stored at the  
8 gateway and used for such limited purposes.

9 In another alternate embodiment, the NCD software converts the files sent  
10 by the data recipient's computer and the data repository into a language that the NCD  
11 can interpret. The NCD software also converts files created by the NCD software into a  
12 language that the data recipient's computer and the data repository can interpret.

13 Referring to **Figures 2A**, the process of purchasing an item over a network is  
14 illustrated. The following process is the preferred embodiment of the present invention,  
15 in alternate embodiments, similar processes can occur in different orders. Additionally,  
16 a transaction involving the exchange of information may involve the storage and  
17 retrieval of data different from that described in the following example.

18 In the preferred embodiment, the process starts with a data subject requesting a  
19 data recipient's offer **200** from a data recipient. In response to the data subject's  
20 request, the data recipient's computer responds by sending a NCD software readable  
21 file and the data recipient's offer to the data subject's computer **202**. The NCD software  
22 processes the NCD software readable file and sends the data recipient's offer and a  
23 message to the data repository **204**.

24 The data recipient's offer includes the following information, however this  
25 information should not be considered a limitation: data recipient identifier, price of the

1 item, a form of digital signature of the data recipient, a final price indicator, and a  
2 transaction number. The data recipient identifier identifies the data recipient who is  
3 offering the item for sale. The price of the item is cost to purchase the item. A digital  
4 signature of the data recipient is used to ensure the validity of the offer. The final price  
5 indicator is used to indicate whether the final cost for the item is affected by the data  
6 subject's shipping address and/or shipping preference. The transaction number is used  
7 for tracking purposes. The transaction number does not contain any product identifying  
8 information. The transaction number acts as an identifier for identifying a transaction.

9 The message sent from the NCD software to the data repository indicates  
10 whether the NCD software contains an NCD software identifier. In the preferred  
11 embodiment, the NCD software identifier is a cookie. A NCD software identifier  
12 identifies the data subject browser on a specific data subject's NCD. The data  
13 repository software receives and processes the message to determine if the NCD  
14 software contains an identifier that identifies a data subject that matches a data entry in  
15 a file in the data subject data structure of the data repository **206**. The data repository  
16 software determines whether a single user or multiple users have used the NCD  
17 software **208** by checking the data subject data structure. If the data repository  
18 software identifies more than one user, the data repository software will select a user  
19 based on a selection criteria generated by the operator of the data repository. If the  
20 user selected by the data repository software is not the current user and the current  
21 user objects, then the data subject is asked for identification **210**. If the current user  
22 does not object, as described below, the current user cannot complete a transaction  
23 unless the current user enters the proper passphrase which belongs to the selected  
24 user. This process requires the data repository software to send a message to the data

1 subject's computer prompting the data subject to provide information to identify the data  
2 subject. In the preferred embodiment, the data repository software prompts the data  
3 subject for the data subject's identification number, email address, and a passphrase.  
4 The data subject's identification number, email address, and passphrase are used to  
5 authenticate the data subject. These entries were provided by the data subject during  
6 the registration process which is discussed below. In alternate embodiments, the data  
7 subject can be prompted for different information to identify the data subject.

8 The data subject's response is sent back to the data repository where the data  
9 repository software then determines if the data subject is known to the data repository  
10 software **212**. A known or registered data subject is a data subject who has previously  
11 registered with the data repository software and whose information matches information  
12 supplied by the data subject during a prior registration. If the data repository software  
13 determines that the information provided by the data subject is insufficient to identify the  
14 data subject, then the data repository software prompts the data subject for the same  
15 information again. The operator of the data repository can set the number of iterations  
16 that the data subject is prompted for the data subject's identity. If the data subject's  
17 response matches the information the data subject supplied during registration, then the  
18 data repository software accesses and gathers the data subject's information which is  
19 stored in the data subject data structure (CDS) **214**.

20 In an alternative embodiment, the system can include a plurality of data  
21 repositories. In such a system, the data subject would be registered on one of the data  
22 repositories. If the data repository software determines that the information provided by  
23 the data subject does not match the information on the data repository the data subject  
24 is connected to, then the data repository software will communicate with the other data



1 repositories to identify the data subject and obtain the data subject's information.

2       If the NCD software does not contain a NCD software identifier or if the  
3 information the data subject provided does not properly identify the data subject, i.e.,  
4 the data subject is not found in a file in the data subject data structure of the data  
5 repository, the data repository software prompts the data subject for the purchasing  
6 information **216**. This is accomplished by the data repository software sending a form to  
7 the NCD software. In an alternative embodiment, the data subject is prompted for the  
8 purchasing information using a plurality of forms. The form or forms prompts the data  
9 subject to provide the purchasing information to complete the transaction. The  
10 purchasing information includes the data subject's name, address, shipping address,  
11 and credit card number, however this list should not be construed as a limitation. In the  
12 preferred embodiment, the data subject has the option of indicating that the data subject  
13 is a registered data subject.

14       The data subject's response or responses are sent to the data repository **218**.  
15 The data repository software then determines if the data subject claims to be a  
16 registered data subject **220**. If the data subject claims to be a registered data subject,  
17 then the data repository software prompts the data subject for proof **222**. In the  
18 preferred embodiment, this is accomplished by the data repository software prompting  
19 the data subject for the data subject's identification number, email address, and a  
20 passphrase. The data subject's identification number, email address, and passphrase  
21 are used to authenticate the data subject. These entries were provided by the data  
22 subject during the registration process which is discussed below. In alternate  
23 embodiments, the data subject can be prompted for different information to identify the  
24 data subject.

1 repositorys to identify the data subject and obtain the data subject's information.

2 If the NCD software does not contain a NCD software identifier or if the  
3 information the data subject provided does not properly identify the data subject, i.e.,  
4 the data subject is not found in a file in the data subject data structure of the data  
5 repository, the data repository software prompts the data subject for the purchasing  
6 information **216**. This is accomplished by the data repository software sending a form to  
7 the NCD software. In an alternative embodiment, the data subject is prompted for the  
8 purchasing information using a plurality of forms. The form or forms prompts the data  
9 subject to provide the purchasing information to complete the transaction. The  
10 purchasing information includes the data subject's name, address, shipping address,  
11 and credit card number, however this list should not be construed as a limitation. In the  
12 preferred embodiment, the data subject has the option of indicating that the data subject  
13 is a registered data subject.

14 The data subject's response or responses are sent to the data repository **218**.  
15 The data repository software then determines if the data subject claims to be a  
16 registered data subject **220**. If the data subject claims to be a registered data subject,  
17 then the data repository software prompts the data subject for proof **222**. In the  
18 preferred embodiment, this is accomplished by the data repository software prompting  
19 the data subject for the data subject's identification number, email address, and a  
20 passphrase. The data subject's identification number, email address, and passphrase  
21 are used to authenticate the data subject. These entries were provided by the data  
22 subject during the registration process which is discussed below. In alternate  
23 embodiments, the data subject can be prompted for different information to identify the  
24 data subject.

1 The data subject's response for proof is sent back to the data repository where  
2 the data repository software then determines if the data subject is a registered data  
3 subject **224**. Again, a registered data subject is a data subject who has previously  
4 registered with the data repository software and whose information supplied by the data  
5 subject matches information supplied by the data subject during a prior registration.

6 If the data repository software determines that the information provided by the  
7 data subject matches the information the data subject supplied during registration, then  
8 the data repository software accesses and gathers the data subject's information which  
9 is stored in the data subject data structure (CDS) **214**.

10 Referring to **Figure 2B**, if the data repository software determines that the  
11 information provided by the data subject is insufficient to identify the data subject, then  
12 the data repository software prompts the data subject for the purchasing information to  
13 complete the transaction **216**.

14 If the data subject does not claim to be registered then the data repository  
15 software acquires the data subject's data from the forms **226**. In addition, the data  
16 subject's response can be sent to the data recipient to determine whether the item can  
17 be sold to that data subject. For instance, a data subject in one state may not be able  
18 to purchase a firearm if the law governing the data subject or data recipient does not  
19 permit such a transaction. In yet another embodiment, the data subject response to one  
20 question can lead to another question which requires another form. For instance, if the  
21 data subject requests overnight shipping, the data repository software can prompt the  
22 data subject to select the overnight shipping service.

23 The data repository software stores the data in a temporary data structure **228**.  
24 The data is evaluated to determine if the data subject elected to register with the data

1 repository **230**. If the data subject elects to become a registered data subject, then the  
2 data repository software sets the flag **232**. If the data subject does not elect to become  
3 a registered data subject then the flag is not set. Registration allows the data repository  
4 software to access the data subject's information which was previously stored in the  
5 data subject data structure. The information acquired from the forms is evaluated to  
6 determine if the information from the data subject is sufficient to complete the purchase  
7 transaction **234**. This step includes the data repository software accessing the data  
8 recipient data structure using the data recipient identifier to ensure that the data  
9 subject's purchasing information is in proper order, i.e., to check that the data subject's  
10 credit card accepted by the data recipient. If the information is not sufficient, the data  
11 subject is prompted for the information again **216**. The operator of the data repository  
12 can set the number of iterations that the data subject is prompted for the information.

13 Referring to **Figure 2C**, once the data repository software determines that the  
14 data subject's information is sufficient to complete the purchase transaction, the data  
15 repository software reads the final price indicator in the data recipient's offer to  
16 determine if the price needs to be adjusted due to the data subject's shipping address  
17 and/or shipping preference **236**. If the price is affected by the data subject's shipping  
18 address and/or shipping preference, then the data repository software communicates  
19 the required information to the data recipient to calculate a new price based on the data  
20 subject's shipping address **238**. In the preferred embodiment, the data repository  
21 software only sends the city, state, country, and mail code information to the data  
22 recipient's computer. This information is limited to permit the revised price calculation  
23 without having to disclose personal information relating to the data subject.

24 In alternate embodiments, the data subject's address can be the data subject's

1 email address or a facsimile number.

2       Once the data recipient responds with the revised price or if the price was not  
3 affected, the data repository software presents the data recipient's offer to the data  
4 subject **240**. The data recipient's offer is displayed to the data subject in the area  
5 reserved for the wallet. The data repository software then determines if the data subject  
6 needs to enter a passphrase. If the data subject is a registered data subject who has  
7 not gone through the authentication process yet, then the data subject is required to  
8 enter the proper passphrase for the data subject identified with the NCD software  
9 identifier (cookie) **242**. The offer is then augmented with a prompt for the user to enter  
10 the data subject's passphrase **244**. The data repository software evaluates the entered  
11 passphrase against data held in the data subject data structure **246** to determine if the  
12 data subject is known (registered) by the data repository software. If the passphrase  
13 does not match, then the data subject is prompted for the correct passphrase **244**. The  
14 operator of the data repository can set the number of iterations that the data subject is  
15 prompted for a correct passphrase to avoid multiple fraudulent attempts to access  
16 information.

17       Once the data subject enters a correct passphrase or if there was no NCD  
18 software identifier for the data subject, the data subject is presented with a buy decision  
19 **248**. The data subject has several options available at this step: the data subject can  
20 elect to buy the item, change the data subject's information and buy the item, or cancel  
21 the transaction. If the data subject elects to change the data subject's information, the  
22 data subject must still decide to either buy the item or cancel the transaction after  
23 changing the information. If the data subject declines to purchase the item, then the  
24 transaction is canceled, then the information held in the temporary data structure is

1 deleted, the dialogue ends and the transaction is terminated **250**.

2 The data subject also has the option of changing the data subject's information.

3 The data subject may wish to change such information for such reasons as the data

4 subject does not agree with the selection by the data repository software or the

5 information contains an error. For instance, if the data subject wishes to change the

6 shipping address, the data subject can enter a new shipping address. In some

7 instances, the data subject can have a plurality of possible entries into the same

8 information block with a preferred entry. In such a situation, the data repository

9 software chooses the preferred information to enter into the information block. The data

10 repository software chooses the information via any selection process known in the art,

11 such as most popular, last used, first used, etc. However, the data repository software

12 cannot enter information into an information block if the data recipient will not allow such

13 an entry. For instance, a data recipient may only accept the ACME credit card and the

14 data subject has not previously used an ACME credit card to purchase an item using

15 the present invention. In such a situation the data repository software prompts the data

16 subject to provide an acceptable form of payment. Information options are available to

17 the data subject in the form of directory of addresses, shippers, shipping methods,

18 credit cards, and other information options.

19 Referring to **Figure 2D**, if the data subject elects to purchase the item, then the

20 information regarding the transaction is delivered to the data recipient's computer,

21 information is written to the data recipient transaction log, and a message confirming the

22 transaction is sent to the data subject's computer **252**. The data repository software

23 then determines if the data subject is registered **254**. If the data subject is a registered

24 data subject, then the information regarding the transaction is written to the data subject

1 transaction log **256**.

2 If the data subject is non-registered data subject, i.e, not known to the data  
3 repository software, then a NCD software identifier (i.e., a cookie) is sent to data  
4 subject's computer **258** and data repository software determines if the register flag was  
5 set **260**. If the register flag is set, then the information stored in the temporary data  
6 structure pertaining to the data subject is transferred to the data subject data structure  
7 for subsequent uses, the data subject is prompted for a passphrase, and the data  
8 repository software saves the transaction data to the data subject transaction log **262**.  
9 If the register flag is not set, the transaction data remains in the temporary data  
10 structure until it is discarded but is unavailable for future use. The transaction process  
11 ends **264**.

12 In addition to registering during a purchasing transaction, a data subject can also  
13 register by accessing the data repository and entering the purchasing information to  
14 become a registered data subject in advance of any purchase.

15 Although the above description is directed at purchasing an item over the  
16 Internet, the same concept of distribution of information can be applied to other areas.  
17 In an alternative embodiment, the data subject can be an accessee, the data recipient  
18 can be an accessor, the data subject data structure can be an accessee data structure,  
19 the data recipient data structure can be an accessor data structure, the data subject  
20 transaction log can be an accessee transaction log, and the data recipient transaction  
21 log can be an accessor transaction log. The accessee can authorize the software on  
22 the data repository to provide information to an accessor. For instance, the accessee  
23 can be a prospective applicant applying for admission into an educational institution  
24 such as a college or a university. In this case, the prospective applicant stores an entire

1 range of information on the data repository where the information is relevant to the initial  
2 screening for college applications. For example, SAT scores, addresses for references,  
3 personal information, responses to questions of desired major or subject area would be  
4 information stored on the data repository. This information could then be supplied to  
5 colleges whose Web sites could access the data repository for the desired information.

6 In yet another embodiment, the entity desiring to allow access to its information  
7 can be a potential mortgage borrower, the entity desiring access can be a mortgage  
8 lender, and the information stored on the data repository can be the borrower's  
9 financial information. In the example, the borrower can authorize the software on the  
10 data repository to provide the mortgage lender the information stored on the data  
11 repository to allow the borrower to apply for a mortgage or to get a quote. Again, the  
12 borrower would provide a wide range of data necessary for the mortgage application  
13 process. The information can include the borrower's credit reports, bank statements,  
14 employment record, and other credit related information.

15 In all of these different type of embodiments, the communications between the  
16 different parties can be encrypted in any manner known in the art. In addition, some of  
17 the communications can be accomplished in different manners. For example, in an  
18 alternate embodiment of the preferred embodiment, communications between the data  
19 repository and the data recipient computer can occur using a separate communication  
20 link. The communication link can be a direct link between the data recipient and the  
21 data repository. Using this separate link can ensure against unauthorized transactions.

22 Although the present invention has assumed the need for a gateway connecting  
23 the NCD network to the common network, the same concepts described herein apply to  
24 NCDs that do not require a gateway to connect to the common network.



1           Although the present invention has been described in detail for purpose of  
2 illustration, it is understood that such detail is solely for that purpose, and variations can  
3 be made therein by those skilled in the art without departing from the scope of the  
4 invention. The preceding descriptions of the operations of the present invention are  
5 merely illustrative. In various embodiments of the disclosed inventions operational  
6 steps may be added, eliminated, performed in parallel or performed in a differing order.  
7 The apparatus and process of the present invention is defined by the following claims.

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